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Dictionary

graft-versus-host disease

Dictionary

graft-ver·sus-host disease (grăft'vûr'sə-hōst', -sə-)
n.

A pathological condition in which cells from the transplanted tissue of a donor initiate an immunologic attack on the cells and tissue of the recipient.

Cancer Dictionary

Graft versus host disease

After bone marrow transplant, the newly transplanted white blood cells can attack the patient's own tissues.

Medical

graft-versus-host disease
n.

A type of incompatibility reaction of transplanted cells against host tissues that possess an antigen not possessed by the donor. Also called *graft versus host reaction*.

Wikipedia

Graft-versus-host disease

Graft-versus-host disease is a common complication of allogeneic bone marrow transplantation. After bone marrow transplantation, T cells present in the graft, either as contaminants or intentionally introduced into the host, attack the tissues of the transplant recipient. Graft-versus-host disease can occur even when HLA-identical siblings are the donors. HLA-identical siblings or HLA-identical unrelated donors (called a minor mismatch as opposed to differences in the HLA antigens, which constitute a major mismatch) often still have genetically different proteins that can be presented on the MHC.

While donor T-cells are undesirable as effector cells of graft-versus-host-disease, they are valuable for engraftment by preventing the recipient's residual immune system from rejecting the bone marrow graft (host-versus-graft). Additionally, as bone marrow transplantation is frequently used to cure malignant disorders (most prominently the leukemias), donor T-cells have proven to have a valuable graft-versus-tumor effect. A great deal of current research on allogeneic bone marrow transplantation involves attempts to separate the undesirable graft-vs-host-disease aspects of T-cell physiology from the desirable graft-versus-tumor effect.

Types

Clinically, graft-versus-host-disease is divided into acute and chronic forms. The acute or fulminant form of the disease is observed within the first 100 days post-transplant, and the chronic form of graft-versus-host-disease is defined as that which occurs after 100 days. This distinction is not arbitrary: acute and chronic graft-versus-host-disease appear to involve different immune cell subsets, different cytokine profiles, and different types of target organ damage.

Classically, graft-versus-host-disease is characterized by selective damage to the liver, skin and mucosa, and the gastrointestinal tract. Newer research indicates that other graft-versus-host-disease target organs include the immune system (the hematopoietic system -- e.g. the bone marrow and the thymus) itself, and the lungs in the form of idiopathic pneumonitis. Chronic graft-versus-host-disease damages the above organs, but also causes changes to the connective tissue (e.g. of the skin).

Prevention

Graft-versus-host-disease can largely be avoided by performing a T-cell depleted bone marrow transplant. These types of transplants result in reduced target organ damage and generally less graft-versus-host-disease, but at a cost of diminished graft-versus-tumor effect, a greater risk of engraftment failure, and general immunodeficiency, resulting in a patient more susceptible to viral, bacterial, and fungal infection. Methotrexate and cyclosporin are common drugs used for GVHD prophylaxis. In a multi-center study (*Lancet* 2005 Aug 27-Sep 2;366(9487):733-41), disease-free survival at 3 years was not different between T cell depleted and T cell replete transplants.

Bibliography

- *Graft-vs.-Host-Disease* by Ferrara et al. (2nd ed.) published by Marcel Dekker is somewhat out of date, but still a nice bound volume.
- Example journals that publish current research on graft-versus-host-disease include *The Biology of Blood and Marrow Transplantation, Journal of Clinical Investigation, Journal of Experimental Medicine, Blood, Journal of Immunology, Nature Immunology, Nature Medicine, Immunity,* and *Transplantation.*

See also

- Transplantation

    - Transplant rejection, also known as "host-verses-graft disease"
- Immunology
    - Immunosuppression
- Cancer

External links

- National Marrow Donor Program

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bone marrow transplant	Cyclosporine
Diarrhea	Lymphocyte immune globulin
Bone marrow transplantation	Sirolimus
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